

# I-Chao Shen

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<https://jdily.github.io>

## Research Interests

Computer graphics, vector graphics, data-driven 2D/3D geometry analysis and processing, machine learning.

## Education

**National Taiwan University** **Taipei, Taiwan**  
*Ph.D. in Computer Science* *Sep 2017 - Dec. 2020*  
Advisor: Bing-Yu Chen.  
Thesis: 2D Visual Content Design Driven by Human-Guided Optimization

**National Taiwan University** **Taipei, Taiwan**  
*Master in Information Management and MBA* *Sep 2009 - June 2011*  
Advisor: Bing-Yu Chen.  
Thesis: Perspective-aware Warping for Seamless Stereoscopic Image Cloning

**National Taiwan University** **Taipei, Taiwan**  
*Bachelor in Information Management* *Sep 2005 - June 2009*

## Experiences

**Assistant Professor**, Tokyo, Japan *Apr. 2023 -*  
Dept. of Computer Science, The University of Tokyo

**Adjunct Assistant Professor**, Tokyo, Japan *July. 2023 -*  
The Institute for AI and Beyond, The University of Tokyo

**Project Assistant Professor**, Tokyo, Japan *Sep. 2022 - Mar. 2023*  
Dept. of Creative Informatics, The University of Tokyo

**Postdoctoral researcher - JSPS Foreign Researchers Fellowship**, Tokyo, Japan *Dec. 2020 - Aug. 2022*  
Host : Takeo Igarashi

**Research Visitor - JST CREST Project**, Tokyo, Japan *Feb 2018 - July 2018, Aug 2019*  
Supervisor : Takeo Igarashi

**Research Assistant - CMLab, National Taiwan University**, Taipei, Taiwan *Apr 2017 - July 2017*  
Supervisor : Bing-Yu Chen

**Research Assistant - Imager Lab, The University of British Columbia**,  
Vancouver, Canada *Sep 2014 - Mar 2017*  
Supervisor : Alla Sheffer

**Research Intern - Imagination Lab, Adobe Research**, San Jose, CA *May 2015 - Aug 2015*  
Supervisor : Nathan Carr, Duygu Ceylan, Zhaowen Wang

**Research Assistant - CITI, Academia Sinica**, Taipei, Taiwan *Sep 2011 - July 2014*  
Supervisor : Wen-Huang Cheng

## Publications

**Learned Inference of Annual Ring Pattern of Solid Wood**  
Maria Larsson\*, Takashi Ijiri\*, I-Chao Shen, Hironori Yoshida, Ariel Shamir, Takeo Igarashi (\*: joint first authors)  
Computer Graphics Forum 2024

**FontCLIP: A Semantic Typography Visual-Language Model for Multilingual Font Applications**

Yuki Tatsukawa, [I-Chao Shen](#), Anran Qi, Yuki Koyama, Takeo Igarashi, Ariel Shamir  
Eurographics 2024

**Virtual Measurement Garment for Per-Garment Virtual Try-On**

Zaiqiang Wu, Jingyuan Liu, Long Hin Toby Chong, [I-Chao Shen](#), Takeo Igarashi  
Graphics Interface 2024

**Improving Cache Placement for Efficient Cache-based Rendering**

Yu-Ting Wu, [I-Chao Shen](#)  
The Visual Computer 2024

**StylePart: Image-based Shape Part Manipulation**

[I-Chao Shen](#), Li-Wen Su, Yu-Ting Wu, Bing-Yu Chen  
The Visual Computer 2024

**NeRF-In: Free-Form NeRF Inpainting with RGB-D Priors**

[I-Chao Shen](#)<sup>\*</sup>, Hao-Kang Liu<sup>\*</sup>, Bing-Yu Chen (<sup>\*</sup>: joint first authors)  
IEEE Computer Graphics and Applications (CG&A) 2023

**Palette-Based and Harmony-Guided Colorization for Vector Icons**

Miao Lin<sup>\*</sup>, [I-Chao Shen](#)<sup>\*</sup>, Hsiao-Yuan Chin, Ruo-Xi Chen, Bing-Yu Chen (<sup>\*</sup>: joint first authors)  
Computer Graphics Forum (Proceeding of Pacific Graphics 2023)

**Data-guided Authoring of Procedural Models of Shapes**

Ishtiaque Hossain, [I-Chao Shen](#), Takeo Igarashi, Oliver van Kaick  
Computer Graphics Forum (Proceeding of Pacific Graphics 2023)

**EvIcon: Designing High-Usability Icon with Human-in-the-loop Exploration and IconCLIP**

[I-Chao Shen](#), Fu-Yin Cherng, Takeo Igarashi, Wen-Chieh Lin, Bing-Yu Cheng  
Computer Graphics Forum Volume 42, Issue 6, September 2023

**360MVSNet: Deep Multi-view Stereo Network with 360° Images for Indoor Scene Reconstruction**

Ching-Ya Chiu, Yu-Ting Wu, [I-Chao Shen](#), Yung-Yu Chuang  
IEEE/CVF Winter Conference on Applications of Computer Vision (WACV) 2023 (Algorithm Track)

**ClipGen: A Deep Generative Model for Clipart Vectorization and Synthesis**

[I-Chao Shen](#), Bing-Yu Chen  
IEEE Transactions on Visualization and Computer Graphics (TVCG), pp. 4211-4224, vol. 28, Dec. 2022

**StyleFaceUV: a 3D Face UV Map Generator for View-Consistent Face Image Synthesis**

Wei-Chieh Chung, Jian-Kai Zhu, [I-Chao Shen](#), Yu-Ting Wu, Yung-Yu Chuang  
The British Machine Vision Conference (BMVC) 2022

**ODEN: Live Programming for Neural Network Architecture Editing**

Chunqi Zhao, [I-Chao Shen](#), Tsukasa Fukusato, Jun Kato, Takeo Igarashi  
Proceeding of ACM Intelligent User Interfaces (IUI) 2022

**Per Garment Capture and Synthesis for Real-time Virtual Try-on**

Toby Chong, [I-Chao Shen](#), Nobuyuki Umetani, Takeo Igarashi  
Proceeding of User Interface Software and Technology (UIST) 2021

**Data-driven Sketch Beautification with Neural Feature Representation**

[I-Chao Shen](#)  
IEEE Computer Graphics and Applications (CG&A) 2021

**Multi-Resolution Shared Representative Filtering for Real-Time Depth Completion**

Yu-Ting Wu, Tzu-Mao Li, [I-Chao Shen](#), Hong-Shiang Lin, Yung-Yu Chuang  
High-Performance Graphics (HPG) 2021

**ClipFlip : Multi-view Clipart Design**

I-Chao Shen, Kuan-Hung Liu, Li-Wen Su, Yu-Ting Wu, and Bing-Yu Chen

Computer Graphics Forum, Volume 40, Issue 1, Feb 2021, arXiv:2008.12933 [cs.GR]

**Interactive Optimization of Generative Image Modeling using Sequential Subspace Search and Content-based Guidance**

Toby Chong Long Hin\*, I-Chao Shen\*, Issei Sato, and Takeo Igarashi (\*: joint first authors)

Computer Graphics Forum, Volume 40, Issue 1, Feb 2021, arXiv:1906.09840 [cs.GR]

**ZomeFab: Cost-effective Hybrid Fabrication with Zometools**

I-Chao Shen, Ming-Shiuan Chen, Chun-Kai Huang, and Bing-Yu Chen

Computer Graphics Forum, Volume 39, Issue 1, Feb 2020

**Director-360: Introducing Camera Handling to 360 Cameras**

Hao-Juan Huang, I-Chao Shen, and Liwei Chan

in proceeding of MobileHCI 2020

**Perception-Driven Semi-Structured Boundary Vectorization**

Shayan Hoshyari, Edoardo Dominici, Alla Sheffer, Nathan Carr, Duygu Ceylan, Zhaowen Wang, I-Chao Shen

ACM Transactions on Graphics (Proceedings of SIGGRAPH 2018).

**High-resolution 360 Video Foveated Stitching for Real-time VR**

Wei-Tse Lee\*, Hsin-I Chen\*, Ming-Shiuan Chen, I-Chao Shen and Bing-Yu Chen

Computer Graphics Forum (Proceedings of Pacific Graphics 2017)

**A Scalable Active Framework for Region Annotation in 3D Shape Collections**

Li Yi, Vladimir G. Kim, Duygu Ceylan, I-Chao Shen, Mengyan Yan, Hao Su, Cewu Lu, Qixing Huang, Alla Sheffer, and Leonidas Guibas

ACM Transactions on Graphics (Proceedings of SIGGRAPH Asia 2016)

**Retargeting 3D Objects and Scenes with a General Framework**

Chun-Kai Huang, Yi-Ling Chen, I-Chao Shen, and Bing-Yu Chen

Computer Graphics Forum (Proceedings of Pacific Graphics 2016)

**Data-driven Handwriting Synthesis in a Conjoined Manner**

Hsin-Yi Chen, Tse-Ju Lin, I-Chao Shen, and Bing-Yu Chen

Computer Graphics Forum (Proceedings of Pacific Graphics 2015)

**Gestalt Rule Feature Points**

I-Chao Shen and Wen-Huang Cheng

IEEE Transactions on Multimedia (TMM), 17(4), pp. 526-537, 2015

**Geometrically Consistent Stereoscopic Image Editing using Patch-based Synthesis**

Sheng-Jie Luo, Ying-Tse Sun, I-Chao Shen, Bing-Yu Chen, and Yung-Yu Chuang

IEEE Transactions on Visualization and Computer Graphics (TVCG), 21(1), pp. 56-67, 2015

**Stroke-guided Image Synthesis for Skeletal Structure Editing**

Sheng-Jie Luo, Chin-Yu Lin, I-Chao Shen, and Bing-Yu Chen

Computer Graphics Forum (Proceedings of Pacific Graphics 2013)

**Perspective-Aware Warping for Seamless Stereoscopic Image Cloning**

Sheng-Jie Luo, I-Chao Shen, Bing-Yu Chen, Wen-Huang Cheng, and Yung-Yu Chuang

ACM Transactions on Graphics (Proceedings of SIGGRAPH Asia 2012).

**Technical Reports and Preprints****AutoPoly: Predicting an Artist-Compatible Polygonal Mesh Construction Sequence from a Silhouette Image**

I-Chao Shen, Yu Ju Chen, Oliver van Kaick, Takeo Igarashi

arxiv preprint ([arxiv:2203.15233](https://arxiv.org/abs/2203.15233))

## Workshop Papers, Short Papers, Posters

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### **3D Reconstruction from Sketch with Hidden Lines by Two-Branch Diffusion Model**

Yuta Fukushima, Anran Qi, [I-Chao Shen](#), Yulia Gryaditskaya, Takeo Igarashi  
Eurographics 2024 Short Paper

### **MicroGlam: Microscopic Skin Image Dataset with Cosmetics**

Toby Chong, Alina Chadwick, [I-Chao Shen](#), Haoran Xie, Takeo Igarashi  
SIGGRAPH ASIA 2023 Technical Communication

### **Computational Design of Nebuta-like Paper-on-Wire Artworks**

Naoki Agata, Anran Qi, Yuta Noma, [I-Chao Shen](#), Takeo Igarashi  
SIGGRAPH 2023 Poster Program

### **Palette-Based Colorization for Vector Icons**

Miao Lin, [I-Chao Shen](#), Hsiao-Yuan Chin, Ruo-Xi Chen, Bing-Yu Chen  
SIGGRAPH 2023 Poster Program

### **OVERPAINT: Automatic Multi-Layer Stencil Generation without Bridges**

Yuta Fukushima, Anran Qi, [I-Chao Shen](#), Takeo Igarashi  
SIGGRAPH ASIA 2022 Technical Communication

### **Guided Image Weathering using Image-to-Image Translation**

Li-Yu Chen, [I-Chao Shen](#), and Bing-Yu Chen  
SIGGRAPH ASIA 2021 Technical Communication

### **Real-time Image-based Virtual Try-on with Measurement Garment**

Toby Chong, [I-Chao Shen](#), Yunfei Qian, Nobuyuki Umetani, Takeo Igarashi  
SIGGRAPH ASIA 2021 Emerging Technologies

### **Transferring Deep Reinforcement Learning with Adversarial Objective and Augmentation**

[I-Chao Shen](#), Shu-Hsuan Hsu, and Bing-Yu Chen  
IJCAI-PRICAI 2020 Workshop on Knowledge-Based Reinforcement Learning (KBRL)

### **Large-scale fabrication with interior zometool structure**

Ming-Shiuan Chen, [I-Chao Shen](#), Chun-Kai Huang, and Bing-Yu Chen  
ACM SIGGRAPH Poster Program 2018

### **A Deep Learning Based Method For 3D Human Pose Estimation From 2D Fisheye Images**

Ching-Chun Chen, Chia-Min Wu, [I-Chao Shen](#), and Bing-Yu Chen.  
ACM IUI Poster Program 2018

### **Retargeting 3D objects and scenes**

Chun-Kai Huang, Yi-Ling Chen, [I-Chao Shen](#), and Bing-Yu Chen  
ACM SIGGRAPH Poster Program 2015

### **Painting Photolization**

Chien-Wen Jung, [I-Chao Shen](#), Sheng-Jie Luo, Bing-Yu Chen, and Wen-Huang Cheng  
ACM SIGGRAPH ASIA Poster Program 2013

### **Texturing and Deforming Meshes with Casual Images**

[I-Chao Shen](#), Yi-Hua Wang, Yu-Mei Chen, Bing-Yu Chen, and Wen-Huang Cheng  
ACM SIGGRAPH ASIA Poster Program 2012

### **User-Assisted Disparity Maps**

Hsin-Yi Chen, Yi-Shan Lin, [I-Chao Shen](#), Sheng-Jie Luo, Wen-Huang Cheng and Bing-Yu Chen  
Pacific Graphics 2012 short paper

### **MusicSpace: You “Play” The Music**

Chun-Yu Tsai, Hung-Jung Lin, Tzu-Hao Kuo, Kai-Yin Cheng, [I-Chao Shen](#) Bing-Yu Chen, and Rung-Huei Liang  
ACM SIGGRAPH Poster Program 2010

## Patent

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### Smoothing images using machine learning

Nathan A Carr, Zhaowen Wang, Duygu Ceylan, I-Chao Shen

United States Patent, No. 9799102, issued October 24, 2017.

## Grants

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JSPS Kakenhi Grant-in-Aid for Young Scientists, Japan	2023 - 2028
AIP Challenge Researcher, Japan Science and Technology Agency (JST), Japan.	2021 - 2022
JSPS Grant-in-Aid for Scientific Research for JPSP foreign fellow, Japan.	2021 - 2023

## Honors

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IPPR Best Ph.D. dissertation award, Honorable mention	2021
JSPS Postdoctoral Fellowship for Foreign Researchers	2020 - 2022
MediaTek Fellowship	2017 - 2020

## Invited Talks

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Tailored Computational Visual Content Creation, <i>ISID (International Symposium on Intelligence Design) 2024</i>	Mar. 2024
Tailored Computational Visual Content Creation, <i>BAI Research Seminar, Institute for AI and Beyond, The University of Tokyo</i>	Feb. 2024
Computer Graphics around you everyday and how to become a Computer Graphics researcher, <i>Chikushigaoka High School, Fukuoka, Japan</i>	July. 2022
Computer Graphics around you everyday and how to become a Computer Graphics researcher, <i>Tokyo Metropolitan Tama High School of Science and Technology, Tokyo, Japan</i> JSPS science dialogue program	July. 2022
Per Garment Capture and Synthesis for Real-time Virtual Try-on, <i>JST CREST 8th Research Area Meeting</i>	Sep. 2021
2D Visual Content Design Driven by Human-Guided Optimization, <i>The University of Tokyo, Tokyo, Japan</i>	Apr. 2021

## Media

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<b>Per Garment Capture and Synthesis for Real-time Virtual Try-on</b>	2021, 2022
- BS フジ - ガリレオ X 第 259 回「現実空間 × 仮想空間二つの世界を重ねる最新技術」(JP)	
- JST News	
- NIKKEI (JP)	
- ZAIKEI (JP)	
- TechCrunch Japan (JP)	
- Tii 技術情報 (JP)	
- Independent TV (UK)	

## Professional Services

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- **Technical Paper Committee:**
  - SIGGRAPH ASIA (2024)
  - AAAI (2023, 2024, 2025)
- **Reviewer:**

- SIGGRAPH, SIGGRAPH ASIA
- Eurographics
- CHI
- Pacific Graphics
- CAD/Graphics
- Transaction on Multimedia
- WACV
- BMVC

## References

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### **Takeo Igarashi**

Professor, Department of Computer Science and Graduate School of Information Science and Technology, The University of Tokyo, Japan

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### **Bing-Yu Chen**

Professor in Department of Computer Science and Engineering / Information Management, National Taiwan University

**Email:** [robin@ntu.edu.tw](mailto:robin@ntu.edu.tw)

### **Yung-Yu Chuang**

Professor in Department of Computer Science and Engineering, National Taiwan University

**Email:** [cyy@csie.ntu.edu.tw](mailto:cyy@csie.ntu.edu.tw)